

that the engaging projections are prevented from being pulled out of the engaging holes.

Claims 1-3 were rejected as anticipated by, or as obvious over, *Kiyose* (6,242,838). The Applicant respectfully traverses this rejection.

The amendments to Claim 1 make clear that the tip ends of the cut-rising pieces prevent the engaging projections of the carbon from being pulled out of the engaging holes, as interpreted by the examiner. As Claim 1 thus defines the invention, that claim is not anticipated by *Kiyose*. The Examiner's characterization of element 512 in that reference as "cut-rising pieces" is in error. Column 4, lines 17-19 mention "Connection members or blazing filler members 512 made of solder are filled in the connection spaces ...". These solder fillers 512 electrically connect each carbon segment 511 to a corresponding terminal member 531.

Accordingly, it should now be seen that *Kiyose* lacks any tip-ends that allow insertion of engaging projections into engaging holes but operate to prevent those projections from being pulled out of the holes. Accordingly, that reference fails to anticipate Claim 1 or the dependent Claims 2 and 3.

Turning to the obviousness rejection, *Kiyose* lacks *any* teaching – other than the solder connection 512 – of an element or function preventing the engaging projections of the carbon segments from being pulled out from the holes. Indeed, it appears doubtful that the solder connections 512 reliably perform that function, as those solder connections are subject to being melted during operation of the apparatus. See Column 4, lines 52-58. One of ordinary skill thus would not find in *Kiyose* any teaching whatsoever of a structural

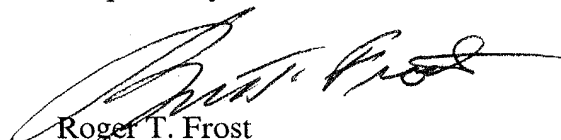
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arrangement to prevent the engaging projections from being pulled out from the corresponding holes, let alone the particular structural and functional arrangement disclosed by the Applicant and set forth in Claims 1 et al. Accordingly, the Applicant submits that the present invention, as claimed, is not rendered obvious over the cited prior art.

The foregoing is submitted as a complete response to the Office Action identified above. This application should be in condition for allowance, and the Applicant solicits a notice to that affect.

Respectfully submitted,



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Docket: 13700-0238 (44471/234042)

MARKED COPY OF AMENDMENTS

In the Specification:

Page 3, rewrite the paragraph at lines 14-24 as follows:

According to a first aspect of the present invention, there is provided a plane carbon commutator comprising a plurality of metal segments fixed to a commutator body made of resin, engaging projections provided on a carbon which was previously burnt at high temperature, said engaging projections being engaged with engaging holes provided in said segments and integrally formed as one unit, wherein tip ends of cut-rising pieces functioning to allow insertion of said engaging projections into said engaging holes but prevent said engaging [holes] projections from being pulled out from said engaging holes, and said cut-rising pieces are brought into contact under pressure from peripheral faces of said engaging projections.

Page 5, revise the paragraph at lines 25-35 as follows:

Thereafter, when the engaging [holes 5H] projections 17P are inserted and engaged with the engaging holes 5H, the tip ends of the cut-rising pieces 5T provided on the engaging holes 5H come into contact with the peripheral faces of the engaging projections 17P such that the cut-rising pieces 5T strongly push the peripheral faces. Therefore, the peripheral faces of the engaging projections 17P receive trimming effect and generate scuff mark, and the peripheral faces of the engaging faces of the engaging projections 17P are formed into coarse faces. As shown in Fig. 5, outer peripheral faces of the cut-rising pieces

5T and the engaging projections 17P are formed with accumulating portions 19 made of conductive paste, and with the conductive paste, the conductivity is further enhanced.

**In the Claims:**

1. (Amended) A plane carbon commutator comprising:

a plurality of metal segments fixed to a commutator body made of resin;

and

engaging projections provided on a carbon which was previously burnt at a high temperature, said engaging projections being engaged with engaging holes provided in said segments and integrally formed as one unit,

wherein tip ends of cut-rising pieces functioning to allow insertion of said engaging projections into said engaging holes but operative [prevent] to said engaging [projections] holes from being pulled out from said engaging holes are projected from peripheral edges of said engaging holes, and

said cut-rising pieces are brought into contact under pressure with peripheral faces of said engaging projections.

**Abstract of the Disclosure:**

[It is an object of the present invention to provide a] A plane commutator in which it is easy to integrally form carbon and segment, connecting strength between the carbon and mold resin is enhanced, and conductivity is enhanced. [To achieve the object, there is provided a] The plane carbon commutator [comprising] comprises a plurality of metal segments [5] fixed to a commutator body [3] made of resin, engaging projections [17P]

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provided on a carbon [7] which was previously burnt at a high temperature, the engaging projections [17P] being engaged with engaging holes [5H] provided in the segments [5] functioning to allow insertion of the engaging projections [17P] into the engaging holes [5H] but prevent the engaging [holes 5H] projections from being pulled out from the engaging holes [5H] are projected from peripheral edges of the engaging holes [5H], and the cut-rising pieces [5T] are brought into contact under pressure with peripheral faces of the engaging projections [17P]. Peripheral faces of tip end side engaging projections [17P] are formed into coarse faces, and conductive paste is interposed between the segments [5] and the carbon [7].